

ABSTRACT OF THE DISCLOSURE

There is here disclosed a semiconductor device manufacturing method comprising a step of forming an island region including a monocrystalline  $\text{Si}_{1-x-y}\text{Ge}_x\text{C}_y$  layer (1 > x > 0, 1 > y  $\geq$  0) and a peripheral region including an amorphous or polycrystalline  $\text{Si}_{1-x-y}\text{Ge}_x\text{C}_y$  layer which surrounds the island region on a monocrystalline Si layer on an insulating film, a step of subjecting the respective  $\text{Si}_{1-x-y}\text{Ge}_x\text{C}_y$  layers to heat treatment, and after the heat treatment and the removal of a surface oxide film, a step of forming a monocrystalline  $\text{Si}_{1-z-w}\text{Ge}_z\text{C}_w$  layer (1 > z  $\geq$  0, 1 > w  $\geq$  0) which becomes an element formation region on the island region.